18 January 2022

U.S. Department of Transportation
Docket Management System, Docket Operations
West Building Ground Floor, Room W12-140
1200 New Jersey Ave, SE
Washington, DC 20590

Subject: Petition for exemption under Part 11 of the Federal Aviation Regulations from 14 CFR §§ 107.36; 137.19(c) and (d); 137.19(e)(2)(ii), (iii), and (v); 137.31(a) and (b); 137.33(a) and (b); 137.41(c); and 137.42.

To Whom It May Concern:

Pursuant to 49 U.S.C. 44807 and 14 C.F.R. Part 11, Williston Vector Control District No.1 (WVCD) submits this petition for exemption from the Federal Aviation Regulations ("FARs") to allow operation of the DJI Agras MG-1P weighing less than 55 pounds for the purpose of conducting agricultural aircraft operations. WVCD requests an exemption from the following FARs: §§ 107.36; 137.19(c) and (d); 137.19(e)(2)(ii), (iii), and (v); 137.31(a) and (b); 137.33(a) and (b); 137.41(c); and 137.42.

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I. BACKGROUND

Williston Vector Control District No. 1 (WVCD) was established in 1967 and expanded in 2015. The district now encompasses all of Williams County, North Dakota, except for the city limits of the City of Tioga. Williston Vector Control operates as a discrete component of Williams County, ND.

Early in 1966, the Williston City Commissioners petitioned the State Health Council to establish a Vector Control District in and around Williston, North Dakota. The State Health Council formally acted to instruct the State Health Department to proceed with the formation of a Vector Control District if it was found feasible and following public hearings. The 1965 North Dakota Legislative Assembly enacted Chapter 23-24 Vector Control Districts, authorizing a one mill levy to organize and conduct a vector control district.

The WVCD is responsible for monitoring and managing arthropod vectors found within the district. The primary arthropod concern is the mosquito which can carry West Nile Virus (WNV), Eastern Equine Encephalomyelitis virus (WEE), and Saint Louis Encephalomyelitis virus (SLE). Managing these mosquitoes involves the application of a variety of mosquito specific pesticides (larvicides) that target the immature stage of the mosquito which develop in various types of standing water. Many of these areas are sensitive wetlands where the use of tracked or wheeled vehicles can disturb wildlife, and in some cases, these vehicles can even create more habitat for immature mosquitoes. Additionally, these areas are often large and inaccessible by foot and can even be hazardous to for employees who would have to carry cumbersome application equipment.

Small Unmanned Aerial Systems (sUAS's) are new technology which can be used to address and mitigate the concerns listed above by decreasing the impact larvicide application equipment has on these areas while increasing the speed at which larvicides are applied. The aerial application of mosquito larvicides also results in a more even distribution of larvicide product necessitating fewer applications over a season and giving better control of mosquito populations. Lastly, sUAS's can quickly apply larvicides to areas that are too small for manned aircraft but are too large to apply on foot. Thus, filling an integral niche in our vector management program.

II. PETITIONER'S ADDRESS

The name and address of the Petitioner is:

Williston Vector Control District No. 1
Attn: Levi K. Zahn
PO Box 17
Williston ND, 58802-0017

III. SUPPORTING DOCUMENTATION

In support of the petition for exemption, WVCD will submit the following associated operating documents:

- WVCD_UAS_SOP_v1.1

These documents will be submitted on a confidential bases under separate cover, pursuant to 14 C.F.R. § 11.35(b), as the documents contain confidential commercial and proprietary information that WVCD has not and will not share with others. The information is protected from release under the Freedom of Information Act, 5 U.S.C. § 552.

IV. DJI AGRAS MG-1P

The following is a brief summary of the specifications of the DJI Agras MG-1P. Additional details regarding the MG-1P can be found in DJI's documentation at https://www.dji.com/downloads/products/mg-1p.

UA type	Octocopter (8 motor and propeller pairs)
Rotorspan	59 inches
Gross takeoff weight	54.7 pounds
Payload weight	22 pounds
Maximum endurance	20 minutes
Cruise speed	16 mph
Typical operating altitude	Less than 30 feet
Avionics	DJI A3 flight control system
Ground control station	DJI GL300N running DJI MG app
Communications	2.4 and 5.8 GHz
Navigation	GPS waypoint-driven flight with integrated radar for terrain following and ground obstacle avoidance

V. REGULATIONS FROM WHICH EXEMPTION IS SOUGHT AND EQUIVALENT LEVEL OF SAFETY

WVCD requests an exemption from the FARs listed in the table below.

FAR	Description
§ 107.36	Carriage of hazardous material
§ 137.19(c), (d), and (e)(2)(ii), (iii), and (v)	Certification requirements
§ 137.31(a) and (b)	Aircraft requirements
§ 137. 33(a) and (b)	Carrying of certificate
§ 137.41(c)	Personnel
§ 137.42	Fastening of safety belts and shoulder harnesses

A. FARs Relating to Part 107 Requirements

WVCD seeks an exemption from § 107.36 because this regulation is not waivable under §107.200 and §107.205. Some of the chemicals dispensed from a small unmanned agricultural aircraft may be classified as economic poison, and the Petitioner does not believe this regulation applies as intended when operating a small unmanned aircraft under Part 137.

An equivalent level of safety will be achieved by the operator obtaining a Part 137 operating certificate prior to operations and following federal, state, and local regulations on the dispensing of economic poison.

B. FARs Relating to Part 137 Personnel Requirements

WVCD seeks an exemption from § 137.19(c) and 137.41(c) to allow a person with a Remote Pilot Certificate to act as a PIC for agricultural aircraft operations under Part 137 when using a small unmanned aircraft. The FAA has previously determined this relief is necessary and appropriate because a Remote Pilot has the knowledge required under Part 107, Subpart C in addition to the knowledge and skills required under § 137.19(e). The Petitioner will also ensure PICs adhere to the WVCD standard operating procedures and training requirements.

The Petitioner believes an equivalent level of safety will be achieved when the PIC, under the proposed conditions and limitations, holds a Remote Pilot certificate and gains the knowledge and skills required of 137.19(e).

The Petitioner also seeks an exemption from § 137.19(e)(2)(ii), (iii), and (v) because these maneuvers are unnecessary and not applicable for small unmanned multirotor aircraft. The Petitioner believes an equivalent level of safety can be achieved by training on and demonstrating all other requirements of the skills test as part of the Part 137 certification process.

C. FARs Relating to Part 137 Aircraft Requirements

WVCD seeks an exemption from § 137.19(d) because small unmanned aircraft operated under Part 107 do not have aircraft certification requirements. Prior to each flight, the PIC will inspect the aircraft to ensure it is in an airworthy condition. The PIC will use the manufacturer's manuals and recommendations when conducting this inspection. These pre-flight activities will ensure the aircraft is in a condition for safe flight and provide an equivalent level of safety.

The Petitioner also seeks an exemption from § 137.31(a) and (b) because as mentioned above, small unmanned aircraft operated under Part 107 do not have aircraft certification requirements. Moreover, no unmanned aircraft is equipped with a shoulder harness to comply with § 137.31(b). A shoulder harness would provide no added safety benefit as the PIC is at a safe location on the ground, therefore granting relief from this regulation will not adversely impact safety.

The Petitioner also seeks an exemption from § 137.33(a) and (b). § 137.33(a) requires the Part 137 operating certificate to be carried on the aircraft. This situation has been previously addressed by FAA legal where the FAA found the intent of this regulation, and other similar regulations, is met if the PIC has access to this document at the ground control station. The Petitioner will carry the Part 137 operating certificate at the ground control station and believes this provides an equivalent level of safety. § 137.33(b) requires the aircraft airworthiness certificate to be available for inspection at the base. Because small unmanned aircraft operated under Part 107 do not have an airworthiness certificate, the Petitioner is unable to comply with this regulation. An equivalent level of safety can be achieved by conducting pre-flight activities required under Part 107.

The Petitioner also seeks an exemption from § 137.42 because unmanned aircraft do not have shoulder harnesses and there is no crew onboard the aircraft. Therefore, granting relief from this regulation will not adversely impact safety.

VI. PROPOSED CONDITIONS AND LIMITATIONS

WVCD proposes to conduct the operations in accordance with the following Conditions and Limitations which will ensure the operations provide an equivalent or greater level of safety to the regulations from which the exemption is sought. The proposed Conditions and Limitations are similar to Exemption 17261.

1. Operations authorized by this grant of exemption are limited to any model small UAS with a maximum take-off weight of less than 55 pounds.
2. When adding any small UAS or new small UAS models that will be operated under this exemption, the operator must notify the Flight Standards District Office (FSDO) which holds their operating certificate. Additionally, operations authorized by this exemption are limited to the small UAS listed on the operator's part 137 Letter of Authorization (LOA).
3. This exemption and all documents needed to operate the small UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the Conditions and Limitations in this exemption, any applicable FAA issued waivers/authorizations, and the procedures outlined in the operating documents, the most restrictive conditions, limitations, provisions, or procedures apply and must be followed. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The General Aviation and Commercial Division, (AFS-800) may be contacted if questions arise regarding updates or revisions to the operating documents.
4. Any small UAS used by the operator that has undergone maintenance or alterations that affect the small UAS operation or flight characteristics, e.g. replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a remote PIC with a Visual Observer (VO) and other personnel necessary to conduct the functional flight test (such as a mechanic or technician). The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.
5. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.
6. PIC qualifications: The remote PIC must demonstrate the ability to safely operate the small UAS in a manner consistent with how it will be operated under this exemption, including the applicable knowledge and skills requirements for agricultural aircraft operations outlined in 14 CFR part 137, evasive and emergency maneuvers, and

maintaining appropriate distances from persons, vessels, vehicles and structures before operating non-training, proficiency, or experience-building flights under this exemption.

7. For small UAS operations where Global Positioning System (GPS) signal is necessary to safely operate the small UA, the remote PIC must immediately recover/land the small UA upon loss of GPS signal.
8. If the remote PIC loses command or control link with the small UA, the small UA must follow a pre-determined route to either reestablish link or immediately recover or land.
9. The remote PIC must abort the flight operation if unpredicted circumstances or emergencies that could potentially degrade the safety of persons or property arise. The remote PIC must terminate flight operations without causing undue hazard to persons or property in the air or on the ground. Documents the operator must retain under §§ 107.13, 137.33, and in accordance with this exemption (including but not limited to: operators exemption, any waiver held, a facsimile of the agricultural aircraft operator certificate, training manual, operations manual, and registration certificate) must be available to the remote PIC at the Ground Control Station of the small UAS at all times the aircraft are operating. These documents must be made available to the Administrator or any law enforcement official upon request. Airworthiness certificates applicable to the small UAS to which this exemption applies are not required for compliance with this condition.
10. The relief granted from § 107.36 is limited to the use of any economic poison as defined in § 137.3.
11. The remote PIC may operation the small UAS from a moving device or vehicle as described in § 107.25, which permits such operation in sparsely populated areas, provided the small UAS do not transport property for compensation or hire. If conducting agricultural aircraft operations in accordance with § 107.25, the remote PIC must satisfactorily demonstrate the applicable knowledge and skills requirements of § 137.19 in the type of device or vehicle to be used in agricultural aircraft operations.
12. This exemption is not valid for operations outside of the United States.

VII. PUBLIC INTEREST

The FAA has recognized that it is in the public interest to grant an exemption that "promotes safe progression of UAS integration into the National Airspace System."[1] The FAA has also issued numerous grants of exemption for the UAS agricultural operations using small UAS weighing less than 55 pounds such as the one issued to Droneseed, Exemption No. 17261.

Conducting agricultural aircraft operations with sUA aircraft is safe, cost-effective, and time efficient compared to crewed aircraft agricultural operations. Major benefits to the public include reduction in injury to ground based applicators in challenging terrain, reduction in chemical drift compared to crewed aircraft application, reduced risk to the flight crew compared to crewed aircraft, reduced chemical exposure to surrounding vegetation, more environmentally friendly economic poison application, and reduced noise compared to crewed aircraft application. In 2020 alone, there were 54 accidents and 12 fatalities amongst manned Part 137 operators. To date,

[1] Grant of Exemption No. 17992, at 15

there have been no fatalities attributed to sUA aircraft operations. Small unmanned aircraft can be more precise than crewed aircraft which allows for smaller quantities of economic poison to be dispensed in a more precise manner.

VIII. FEDERAL REGISTER SUMMARY

WVCD proposes the following summary for publication in the Federal Register should it be determined that publishing is needed:

> The Petitioner is seeking an exemption from the following rules:
>
> 14 CFR §§ 107.36; 137.19(c) and (d); 137.19(e)(2)(ii), (iii), and (v); 137.31(a) and (b); 137.33(a) and (b); 137.41(c); and 137.42
>
> to operate unmanned aircraft, weighing less than 55 pounds, commercially for agricultural aircraft operations as defined in 14 C.F.R. §§ 137.3. This exemption is needed because the listed regulations are burdensome for unmanned aircraft operators to operate under. The proposed conditions and limitations in the petition and supporting documentation will provide an equivalent level of safety.

IX. STATUTORY AUTHORITY

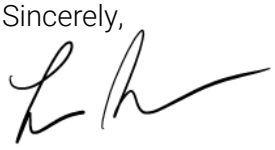
The Federal Aviation Act gives the FAA the authority to grant exemptions. In accordance with 49 U.S.C § 44701(f), "The Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of this section or any sections 44702-44716 of this title if the Administrator finds the exemption in the public interest.

X. CONCLUSION

As set forth above, WVCD requests that the FAA grant this petition for exemption. The size, weight, and operational limitations of the exemption will provide an equivalent level of safety or better to existing aviation activities in the NAS.

We respectfully request timely evaluation of this exemption request.

Sincerely,



Director: WVCD

Levi K. Zahn, PhD